

REMARKS

Claims 1-37 are pending in this application. In this Response, Applicants have amended certain claims. In light of the Office Action, Applicants believe these amendments serve a useful clarification purpose, and are desirable for clarification purposes, independent of patentability. Accordingly, Applicants respectfully submit that the claim amendments do not limit the range of any permissible equivalents.

In particular, independent claims 36-37 have been rewritten to overcome § 112 issues. As no new matter has been added, Applicants respectfully request entry of these amendments at this time.

THE REJECTION UNDER § 112

The Examiner rejected independent claims 36-37 under 35 U.S.C. § 112, second paragraph as being incomplete for omitting essential structural cooperative relationships of elements. While the explanation for the rejection was somewhat vague, Applicants have attempted to amend the claims in a manner similar to other pending independent claims that were not rejected. For example, both claims now recite language such as "capable of directing light at the at least one object" in order to show a relationship between the light source and the object.

Thus, in light of the amendments herein, Applicants respectfully submit that the § 112 rejection has been overcome. As such, Applicants respectfully request reconsideration and withdrawal of the rejection.

THE DOUBLE PATENTING REJECTION

The Examiner rejected claims 1-37 under the judicially created doctrine of obviousness-type double patenting as obvious over claims 1, 3, 7-8, and 12 of U.S. Patent No. 6,758,759 to Gobush *et al.* for the reasons provided on pages 2-3 of the Office Action. In response, Applicants submit herewith a Terminal Disclaimer in compliance with 37 C.F.R. § 1.321(c) in order to overcome the double patenting rejection. As such, Applicants respectfully request that the double patenting rejection be withdrawn.

THE REJECTIONS UNDER 35 U.S.C. § 103

Claims 1-10, 28-29, 31-33, and 36-37 were rejected under 35 U.S.C. § 103(a) as being obvious over U.S. Patent No. 5,459,793 to Naoi *et al.* as provided on pages 4-5 of the Office Action. In addition, the Examiner rejected claims 11-27, 30, and 34-35 under § 103(a) as obvious over Naoi in view of U.S. Patent No. 5,575,719 to Gobush *et al.* for the reasons set forth on pages 5-6 of the Office Action. Neither Naoi nor Gobush alone, or in combination, disclose or suggest the present invention for at least the reasons that follow.

Naoi Does Not Disclose or Suggest the Present Invention

Naoi generally discloses a motion analysis system that includes a plurality of light sources, a color TV camera, a color extraction circuit, a noise elimination circuit, a blackout curtain, and an object having a color marker attached thereto. See Col. 3, lines 3-8. The Examiner recognizes that Naoi does not explicitly disclose including a fluorescent marker in the object as presently recited in all of the independent claims. In spite of this deficiency, however, the Examiner is of the opinion that, "since Naoi discloses choosing a marker with a high directivity light reflection member (Col. 4, lines 9-13), and since it would have been well known that the fluorescent material generates high reflection, Naoi obviously encompasses teaching the well known high reflection fluorescent material." Office Action at Page 4. Applicants respectfully disagree with this broad assumption and respectfully submit that a skilled artisan would not have been motivated to modify the Naoi system by using a fluorescent marker for at least the following reasons.

First, the color marker in Naoi is a highly reflective directional material (see, e.g., Col. 1, lines 33-56). As known to those of ordinary skill in the art, Naoi's color marker is similar to reflective tape on a running shoe and, as such, the full amount of light directed at the marker is reflected back to the camera. In contrast, the fluorescent marker of the present invention is a passive diffuse marker, which returns light as the square of the distance, *i.e.*, a portion of the light falls off as it is reflected. For example, as understood by one skilled in the art, highly reflective directional markers typically reflect about 1000 percent more light than a white diffuse surface reflects to its source, while fluorescent markers reflect about 200 percent brighter light than a white diffuse markers, irrespective of the light source location.

Second, it is well understood that highly reflective directional markers generally reflect a wide spectrum of light at a high intensity, while fluorescent markers reflect a narrower spectrum of

light at high intensity. Third, in order for highly reflective directional markers to reflect the maximum amount of light, the angle between the light source axis and the camera axis should be small, e.g., usually less than 15 degrees. See, e.g., Col. 5, lines 7-10; see also Fig. 5. In contrast, the use of fluorescent markers provides flexibility in the arrangement between the light source and the light receiver.

In light of these well understood differences between highly reflective directional markers and fluorescent markers, one of ordinary skill in the art would not have been motivated to modify Naoi with the presently recited fluorescent marker absent the use of impermissible hindsight. Furthermore, even if a passive diffuse fluorescent marker was somehow equated to Naoi's highly reflective directional marker as suggested by the Examiner, *arguendo*, the use of such marker in Naoi's system would result in a unit that was inoperable as intended by Naoi. In fact, Naoi's system depends on the calculation of the area of the reflected color image, as well as the center of gravity calculation (which is based on the area calculation). See, e.g., Col. 4, lines 15-29. If a passive diffuse fluorescent marker were used, the area calculation and, thus, the center of gravity calculation, would be inaccurate as a result of the amount of light that falls off as it is reflected back to the camera. Naoi's system does not account for a loss of reflected light. This inaccuracy would also then have a ripple effect and interfere with the diaphragm adjustment, which ensures that the area calculated by the area calculation unit coincides with the actual color of the marker (Col. 9, lines 42 to Col. 10, line 8). For at least this reason, a skilled artisan would not have considered the fluorescent marker of the present invention to be interchangeable with the highly reflective directional marker used in Naoi.

In addition, the Examiner has stated that Naoi is deficient with respect to the present invention in that there is not even a suggestion of a filter for the light receiver. Despite this lack of filter disclosure, the Examiner is of the opinion that it would have been obvious to "implement a filter into the receiver in order to facilitate filtering a particular frequency of the light received at the receiver." Office Action at Page 4. Applicants respectfully submit that a skilled artisan would not have found it obvious to include a filter for the camera absent the present application to use as a template. The lack of previous monitoring systems using filters as presently claimed demonstrates the non-obvious nature of the claims. As such, Applicants respectfully request that the Examiner

provide proof in documentary form that the claimed subject matter is obvious in that it requires only "routine skill in the art."¹

Furthermore, skilled artisans are aware that ambient light, such as sunlight, can affect the way that highly reflective directional markers

Finally, independent claim 36 features a system in which the light source and the light receiver both have filters. The purpose of the dual filters is to a) allow only selected wavelengths of light to contact the object and b) allow only a portion of the reflected light (off of the object) to pass through the camera filter and be transmitted to the camera. Specification at Page 5 at lines 8-16. In particular, the light filter allows for definitive contrast between the excitation wavelength (from the light source) and the emission wavelength (from the markers once illuminated) so that only the emitted light will be imaged by the camera. Specification at Page 9, lines 11-14. And, the camera filter creates greater contrast between the illuminated markers and any objects in the field-of-view. Specification at Page 7, lines 7-8. Naoi does not disclose or even suggest filters for the light source and the light receiver.

In sum, Naoi is deficient with respect to the present invention with regard to a) fluorescent markers and b) a camera filter. Applicants respectfully submit that only the present invention provides the requisite motivation for a skilled artisan to supplement the Naoi disclosure and arrive at the subject matter recited in the claims. Thus, Applicants respectfully request that the § 103 rejections based on Naoi be reconsidered and withdrawn.

Gobush Does Not Remedy the Deficiencies of Naoi

The Examiner has previously stated that Gobush does not explicitly disclose including a filter into the light receiver, i.e., the camera. See Office Action mailed December 4, 2003 at Pages 2-3. As such, Gobush does not remedy the deficiency of Naoi with respect to this feature of the invention, which is included in all of the independent claims. Thus, even if a skilled artisan combined the Naoi and Gobush disclosures, the result would not have been to the presently recited monitoring system.

Furthermore, as discussed above, independent claim 36 now features a system in which the light source and the light receiver both have filters. Like Naoi, in addition to being

¹ Similar to previous rejections in the instant application, it appears the Examiner is attempting to take advantage of a form of Official Notice (MPEP § 2144.03). Applicants respectfully submit, however, that the light receiver filter is not so well known to be capable of instant and unquestionable demonstration. MPEP § 2144.03(a) at 2100-131.

completely silent as to a filter for the light receiver, Gobush also does no disclose or even suggest a filter for the light source. Therefore, even if a skilled artisan were to combine Naoi and Gobush, the combination would not have resulted in the invention presently recited in claim 36.

For at least these reasons, Applicants respectfully submit that the combination of Naoi and Gobush does not render obvious the present invention. Thus, Applicants respectfully request reconsideration and withdrawal as to the rejection based thereon.

CONCLUSION

All claims are believed to be in condition for allowance. If the Examiner believes that the present amendments still do not resolve all of the issues regarding patentability of the pending claims, Applicants invite the Examiner to contact the undersigned attorneys to discuss any remaining issues.

A Fee Sheet Transmittal is submitted herewith to pay for the Terminal Disclaimer. No other fees are believed to be due at this time. Should any fee be required, however, please charge such fee to Swidler Berlin Shreff Friedman, LLP Deposit Account No. 195127, Order No. 20002.0162.

Respectfully submitted,
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